

Summary of:

"Efficient Auctions"

Dasgupta, P. and Maskin, E. (1998) mimeo.

By Pedro Dal Bó

Most of the literature on auctions has dealt with the issue of optimality in the design of the auctions, i.e. revenue maximization for the seller. But has paid less amount of attention to the issue of efficiency, that is maximization of the social surplus, i.e. giving the good to the agent that values it the most. As the authors say, while both objectives are related there is a tension between the two. "For example, revenue-maximization typically involves the seller imposing a strictly positive reserve price... even if he attaches no value to the good himself; such a reserve price clearly interferes with efficiency".

In the benchmark case of private values, risk neutral and symmetric agents both the first and second-price auctions achieve an efficient outcome. If the distributions of types are not symmetric only the second-price auction achieves an efficient outcome. Unfortunately, this is not true if we leave the assumption of private values.

Dasgupta and Maskin show that efficiency can be obtained in a broad class of situations through a generalization of the second-price auction.

They consider the general case in which the valuation that each agent has for the good on sale may depend on the signals received by the other agents. That is, the valuation of agent i can be represented by the function $v_i(s_1, \dots, s_n)$ where s_j is the signal observed by agent j . This allows for both the private values and perfect common values cases as particular cases.

They show that if the private signal can be summarized in a one dimensional signal, the private signal observed by an agent has a positive effect on his valuation of the good ($\partial v_i / \partial s_i > 0$), and this effect is bigger than the effect on other agents valuations ($\partial v_i / \partial s_i > \partial v_j / \partial s_i$), then a generalize second-price auction is efficient.

If signals are multidimensional they show that full efficiency is, in general, unattainable by any auction. They have a nice simple example of this in page 33. The problem is that it may be impossible to make the bidder reveal his true signals given the multidimensionality. The authors show that their generalize second-price auction is efficient subject to the incentive-compatibility constraints under the assumption of independence of signals.

Finally, they generalize the second price auction to obtain efficient allocations in multiunit auctions.

The authors consider that in the study of efficient auctions the leading remaining issue is the finding of an appropriate "English" auction that would yield an efficient outcome.